

King County Auditor's Office

Kymber Waltmunson, King County Auditor



King County

DATE: March, 11, 2014

TO: Metropolitan King County Councilmembers

FROM: Kymber Waltmunson, County Auditor

SUBJECT: Follow-up on 2011 Performance Audit of Solid Waste Transfer Station Capital Projects

The Solid Waste Division (SWD) has made significant progress implementing the recommendations in our 2011 Performance Audit of Solid Waste Transfer Station Capital Projects, completing or making progress in all four of the audit recommendations. A key finding from our 2011 audit, and more recently as shown in SWD's review, is that the information and analyses underlying SWD's 2006 plan, especially the tonnage forecast, are out of date, and that assumptions about future needs are subject to a large degree of uncertainty. Given this uncertainty, the County and its partners can reduce the risks associated with investing in future capacity by maintaining maximum flexibility in system design and utilization.

Of the four audit recommendations:

DONE	2	have been fully implemented
PROGRESS	2	are in progress or partially implemented
OPEN	0	remain unresolved

This report focuses on the progress made in recommendation 4, as recommendations 1 and 2 were previously implemented, and work is still ongoing for recommendation 3.

Recommendation 4 called for an update of the 2006 Solid Waste Transfer and Waste Management Plan (Plan) with an analysis of the functionalities and the cost impacts of the number and capacities of the transfer stations. It also called for an assessment of which project financing and delivery method is most likely to result in lower capital costs. King County Ordinance 17619, adopted July 8, 2013, directed SWD to address recommendation 4 as part of a Transfer Station Plan Review.

In response to the audit recommendation and Ordinance 17619, SWD conducted a series of workshops and analysis as part of a Transfer Station Plan Review. With the completion of the mandated review, we find that that SWD has implemented part of recommendation 4 and has provided county policy-makers a variety of information to assist in making decisions about system alternatives.

This report also provides information for county policy-makers and transfer system partners on potential strategies to mitigate or avoid customer service impacts from redirecting transactions if a Northeast Regional Transfer Station is not built. We also provide additional information that

underscores the recommendation from our 2011 performance audit that SWD explore other project development alternatives to enhance the cost-effectiveness of future transfer stations.

Recommendation Status as of March 2014

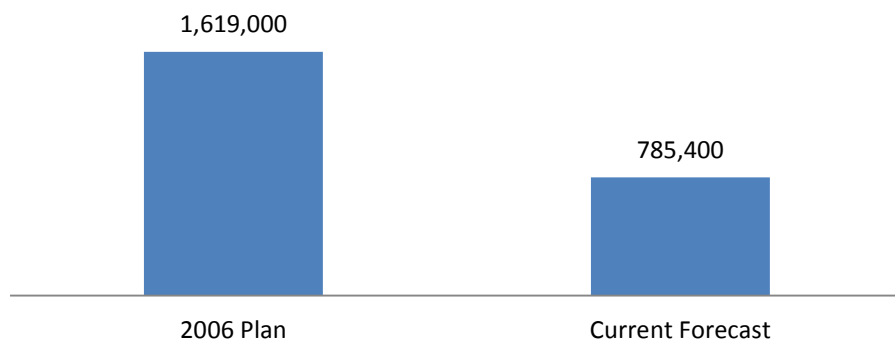
#	Status	Recommendation	Status Detail
1	DONE	In its financial plan, the Solid Waste Division should use the economic assumptions adopted by the King County's Forecast Council to the extent the assumptions apply, such as for general inflation and Investment Pool interest earning.	Implemented in 2012.
2	DONE	The Solid Waste Division should continue to develop and then formally adopt life-cycle cost analysis as part of its asset management program.	Implemented in 2011.
3	PROGRESS	The Solid Waste Division, in cooperation with the Executive Finance Committee, should review the feasibility of a new investment strategy for the Landfill Reserve Fund (LRF).	This policy is still being considered by the Executive Finance Committee.
4a	DONE	SWD should update transfer system and individual facility plans as they have indicated. During this process, SWD should provide county policy-makers and regional partners a systematic analysis of: the incremental cost impacts of the number and capacities of the transfer stations; the functionalities of the stations;	SWD's work on the plan review in 2013-14 implements this part of the recommendation.
4b	PROGRESS	and an assessment of which project financing and delivery method is most likely to result in lower capital costs.	This part of the recommendation should be carried out for future stations.

Status of Recommendation 4

Large decrease in tonnage forecast is not reflected in the current base plan.

Our 2011 performance audit noted that changes in the economy and declines in system tonnage over recent years have resulted in revised tonnage forecasts. This fact, together with concerns about transfer station capital costs, led to recommendation 4. To put the tonnage forecast into perspective, the current forecast is for 785,400 tons of waste in 2029, the year after five eastside cities are now assumed to be leaving the SWD system.¹ In comparison, the forecast from the 2006 Plan for the same year, 2029, was 1,619,000 tons; more than double the current forecast. This new forecast assumes an ambitious plan of increasing the recycling rate by 1% per year until it reaches 70%.

Tonnage Forecast for 2029 is Now Much Lower



Source: SWD Forecast Data

The base plan (status quo) described by SWD in the current Transfer Plan Review is the same, in terms of closed and newly built transfer stations, as the existing Plan that dates from 2006, even though the tonnage forecast is much lower now. Some alternatives in the current Transfer Plan Review would reduce the number of new transfer stations and possibly postpone the closure of some of the older stations.

Information in the Transfer Plan Review provides updated estimates on capacity needs and customer service impacts from a variety of system alternatives.

Beginning in August 2013 and for the next two months, SWD conducted workshops to report on its progress in conducting the plan review and to solicit stakeholder input. SWD also gave briefings to stakeholder groups, including the Metropolitan Solid Waste Management Advisory Committee, the Sound Cities Association, the City of Bellevue, and the Solid Waste Advisory Committee, among others. The original deadline for submission of the Plan for County Council approval was November 27, 2013, but this deadline was later extended by the County Council to March 3, 2014, to allow for further input from stakeholders and review by SWD.

¹The cities are Bellevue, Clyde Hill, Hunts Point, Medina and Yarrow Point.

Altogether, SWD provided information as part of its review on the base plan and six system alternatives, with six variations of the alternatives, for a total of 13 different system scenarios. For each of these scenarios, SWD gave various levels of detail on possible environmental, customer service, and cost impacts. Given the short time for the review, the alternatives considered were constrained in terms of number and kind. As examples, although the workshops examined how the various alternatives provided different levels of recycling services, they did not focus on how to optimize transfer station recycling² or how the system might specifically be redesigned in response to developments in waste conversion technologies and waste-to-energy.

The information in the Transfer Plan Review suggests the need to maintain flexibility in the plan to respond to changing conditions.

As part of our follow-up review to the 2011 performance audit, we reviewed the data and analysis provided by SWD, limiting our review primarily to the models and calculations used to estimate the impacts of the system alternatives presented. In several instances we found data issues that needed to be addressed, and SWD responded promptly and professionally. We found that over a short span of several months that SWD was able to produce a large quantity and variety of quality information that will aid in decision-making.

An important caveat to the work that was done is that it rests on many assumptions, such as the tonnage forecast and estimates of vehicle transactions, which are based on a single year's worth of data, an estimate of future recycling rates, and impacts on commercial haulers from different system configurations. As experience has demonstrated, such estimates are points in ranges and actual results can vary widely. Such assumptions also cannot anticipate major changes in technology (e.g., innovations in recycling or production, waste-to-energy, etc.) or consumption habits, large demographic or economic fluctuations, etc. Given these facts, an important consideration for policy-makers is to view the system alternatives in terms of the flexibility they offer to respond to changing conditions.

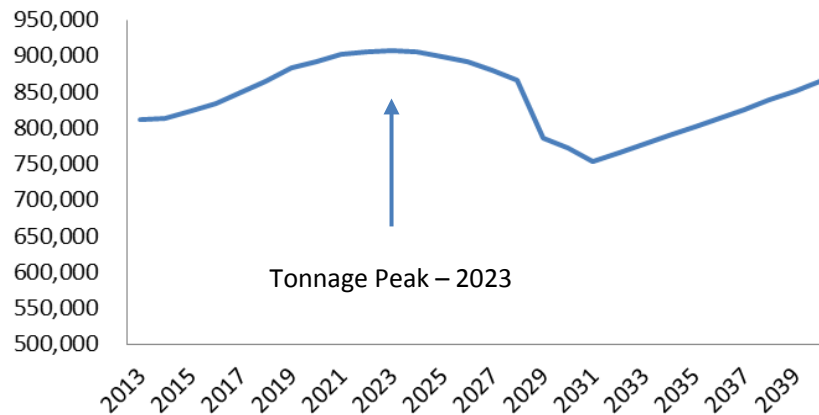
There would be adequate tonnage capacity within the system without a new northeast facility, and overbuilding capacity poses a financial risk.

Based on SWD analyses and our review, service demands warrant the completion of a Factoria Transfer Station and provision of a South County Regional Transfer Station. The analyses also indicate, however, that there will be adequate tonnage and transaction capacity within the system as a whole without a new Northeast Regional Transfer Station.

Our analysis, as well as that of SWD, concludes that as a result of the Houghton closure in 2021 and to a much lesser extent the closure of Renton in 2019, service delays and customer queues at Factoria in the future could pose a problem. According to the current forecast, this problem would be short-term because total system tonnage is expected to increase to a high mark of 907,500 tons in 2023, and then begin to decline with a sharp drop in 2029 when the five eastside cities are expected to leave the system. By 2031, tonnage is forecast to reach a low point of 754,000 tons.

²Enhanced recycling strategies were recently reviewed by SWD in:
<http://your.kingcounty.gov/solidwaste/about/Planning/documents/optimized-TS-feasibility-study.pdf>

Departure of Eastside Cities Would Hasten Tonnage Reduction



Source: SWD Forecast Data

Given all of the uncertainties with planning assumptions, the County and its partners should consider keeping options open as to whether or when a northeast facility would be needed and whether or when to close or limit the types of transactions at Houghton and Renton.

There are options available to mitigate or avoid impacts on customers.

A financial risk to the County, its partners, and to ratepayers lies in a commitment to build a northeast facility that may add unneeded capacity while there are a number of alternatives and combinations of alternatives that could mitigate or avoid delays and customer queues at Factoria at peak times during peak tonnage years. For example:

- Keep Houghton open beyond 2021, but limited to self-haul transactions. According to our modeling, based on plan update data and assumptions, this alternative could effectively eliminate the self-haul capacity issue at Factoria. Extending the closure date of Renton also would have an impact, but one much lower than extending Houghton.
- Divert some commercial transactions to other transfer stations, particularly to Shoreline, which currently has underused capacity.
- Provide incentives for more regional direct commercial hauling to Cedar Hills, which was accommodating 250,000 tons per year before the change in fees 10 years ago.
- Adopt operational strategies aimed at reducing or redirecting self-haul transactions while improving customer service (see a description of such potential strategies, below).

Any changes to the Plan that would involve diverting transactions or modifying transfer station closure dates are matters that would need to be further discussed and closely planned with the affected city partners.

On issues related to tonnage handling, the 2006 Plan was predicated on having five newer facilities in place to compact waste for transfer by rail once Cedar Hills reached its maximum capacity. With the decline in the forecast, coupled with past initiatives and future options for extending the useful life of Cedar Hills, the expected closure date of the landfill in late 2025 may

no longer be valid. Taking advantage of available landfill capacity to extend the life of Cedar Hills would not only be a cost-effective disposal option, but also would further reduce the urgency to build out the system plan as originally envisioned.

In conclusion, the information and analysis provided by SWD indicate that the assumptions underlying the 2006 Plan are out of date. Maintaining maximum flexibility will reduce the risk that the County and its partners will invest in capacity when it is not needed. It is also important to note that when the Solid Waste Transfer and Waste Management Plan is ultimately updated and approved, the system information provided in the Plan should reflect the more up-to-date information, such as the tonnage forecast, that has emerged from the plan review. In addition, the County's comprehensive plan should likewise reflect the updated information.

There are strategies to reduce the number of peak hour self-haul transactions at transfer stations.

To address potential impact to level-of-service standards for residential self-haulers caused by changing the number and location of transfer stations, and in order to enhance services under any system configuration, our research found that there are a number of strategies SWD could explore to reduce the number of trips to transfer stations or to manage traffic more effectively at the facilities.

Some methods to reduce trips could include:

- While King County already offers many alternatives for customers to dispose of extra waste or bulky items, King County and its partners could consider instituting an on-call hauling services option through a fee added to a resident's monthly bill, whether used or not. Tacoma's Call-2-Haul service uses this approach to allow residents to schedule hauling appointments one or more times a year.
- King County could explore additional approaches with its partners to increase the number of redemption centers for recyclable materials to help decrease visits to the transfer station, since many self-haulers cite recycling as one of the reasons for coming to a facility.

Other methods to redirect transactions or to better handle them might include:

- Traffic management methods to allow those with the smallest loads (e.g., a couple trash bags) and/or recycling only to bypass the scale house.
- Web cameras at the facilities (e.g., Seattle, WA and Sandwich, MA) to allow self-haulers to adjust the timing of their visit to the transfer station based on station wait time considerations.
- Digital signs to help direct traffic and inform users of wait times.
- Strategic use of staff to assist in ushering self-haulers through the facility and/or to enforce a time limit on time spent inside the facility, particularly during peak use times.
- Price adjustments that lower fees for automated scales and/or provide a disincentive for use of the scale house have been tested in other jurisdictions.

We continue to recommend that SWD explore alternative procurement methods for the design and construction of future transfer stations.

An opportunity exists for SWD to improve the cost-effectiveness of future transfer stations by fully considering the procurement alternatives available to King County, including:

- design-build,
- general contractor-construction manager,
- public-private partnership,
- design-bid-build, and
- competitive negotiation methods.

In response to Ordinance 17435, SWD had a consultant assess these procurement methods in April 2012 for the Factoria transfer station project. Because this assessment was affected by issues specific to Factoria, Ordinance 17437 requires the executive branch to review and report to County Council on all major procurement methods before proceeding with site or facility design for any future transfer station.

SWD has used the competitive negotiation procurement method uniquely available to solid waste organizations under RCW 36.58 for the completed Bow Lake and planned Factoria transfer station projects. Unlike the design-bid-build procurement method most commonly used by King County agencies, this method does not require SWD to award construction contracts to the lowest qualified bidder. Instead, the division is able to establish selection criteria, including factors like contractor experience, approach, and cost, to select the best value for the County.

According to SWD, competitive negotiation fosters scheduling and coordination efficiencies by providing an opportunity for contractor feedback on the constructability of their projects prior to finalizing the design and awarding the construction contract. It is uncertain, however, that SWD is fully achieving the potential benefit of contractor input. For example, while SWD conducted a value engineering study and constructability review for Factoria, these steps were completed without contractor involvement. Also, by the time SWD initiated its contractor procurement process, the project design was 100% complete. This may have reduced the opportunity to cost-effectively implement contractor-identified value engineering or constructability improvements. Our Capital Projects Oversight Program has recommended that SWD develop performance measures to document the benefits achieved by using the competitive negotiation method on the Factoria project.

SWD cited the resources already spent on design, the need to keep the existing transfer station open during construction, and the need to complete the replacement transfer station as soon as possible due to safety considerations as reasons for using competitive negotiation for Factoria instead of one of the other procurement methods. The reasons cited by the division may not apply to future transfer station projects, as discussed for each procurement method below:

Design-Build and General Contractor-Construction Manager

SWD's consultant did not evaluate these procurement methods for Factoria since they already had a design team under contract and the design work was substantially complete. Using either of these methods may afford an opportunity for SWD to improve on the cost-effective delivery of future transfer stations through coordinated design and constructability considerations starting early in project development.

Public-Private Partnerships

The review by SWD's consultant demonstrates a misunderstanding of King County's use of this procurement method. It assumed that the County would finance the project. It also assumed the County would not be able to operate or maintain the new facility. In fact, King County's public-private partnerships have all relied on private financing. The County has also been able to choose which, if any, operations or maintenance activities are conducted by the private partner. The public-private partnership procurement method has been successfully used for a variety of completed projects, including the Chinook Building and Goat Hill Parking Garage, King Street Center, and the Ninth and Jefferson Medical Office Building. It was also planned for the South Regional Roads Maintenance Facility, which was cancelled due to a revenue shortage.

Design-Bid-Build

The consultant's review identified that the design-bid-build procurement method offers limited interaction with contractors prior to awarding the contract. It stated this increases the risk of schedule delays, cost over-runs, or quality issues since the winning contractor may not fully understand the project scope. It also noted that competing contractors may underbid the project to win the contract, intending to recover costs through change orders or claims during construction. County agencies, including SWD, regularly face these risks since design-bid-build remains the most common procurement method used by the County. They can be substantially reduced by preparing high quality construction documents and effective project management during construction.

For the response to Ordinance 17437, we recommend that SWD consult with both county and external resources having hands-on experience with each of the alternative procurement methods under consideration. Consistent with ordinance requirements, SWD's evaluation should be completed early during project development, before investing resources in design or other work which could constrain SWD's approach. The Facilities Management Division recently completed a rigorous evaluation of alternative procurement methods for the County's Children and Family Justice Center project, which may provide a useful example for SWD's future evaluation efforts.

Acknowledgments

We wish to thank the Department of Natural Resources and Parks and SWD for their cooperation with this follow-up audit, and we appreciate the analysis provided by SWD staff and the work that went into quantifying potential impacts of system alternatives.

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